

5 further comprises means for analyzing the bandwidth availability on each customer's  
6 DSL line and for controlling said bandwidth recoders accordingly.

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### REMARKS

Claims 1, 5 and 6 have been rejected as obvious over a combination of Ovadia et al. (6,400,720) in view of Appelman (6,112,250). In response to this rejection, claim 1 has been amended to remove the recoder circuits and to add recitations that the programmed computer is programmed to analyze requests from each customer and determine the number of tuners each customer has and to manage the creation of the output streams such that the programs and/or services each customer requested are transmitted to that customer on a number of logical channels which does not exceed the number of tuners the customer has. The recoder circuits have been added to dependent claim 3 which depends from claim 1.

An obviousness rejection based upon a combination of references is correct only when there is suggestion to combine the references along the lines of the invention. Suggestion cannot exist when the references do not contain all the elements needed to make the claimed invention because even if the references were to be combined, the result would be inoperative to solve the problem the claimed invention solved because one or more elements of the claim would be missing from the combination. Suggestion cannot exist when the claimed combination will not solve the problem the claimed invention solves.

Here, neither Ovadia nor Appelman teach an element in a head end pull multiplexer which is capable of analyzing requests received from users and analyzing the number of tuners each user has. This element missing from the combined references but added to claim 1 functions to manage the generation of output data streams to be transmitted to each user so that, if possible, all programs and/or services which each said user requested are transmitted to said user on a number of logical channels which does not exceed the number of tuners said user has. Since one skilled in the art would not perceive a likelihood of success in solving the problem amended claim 1 solves by combining Ovadia with Appelman (because not all the elements needed to do the job

would be present), there is no suggestion of amended claim 1 from the combination of Ovadia with Appelman. Appelman is only concerned with decompression and recompression in an intermediate server between a source server and a destination computer. Ovadia is only concerned with teaching a method to receive variable length P packets and fixed length MPEG packets and process them so that they can be transmitted in a standard digital transmission frame.

Claim 3 was rejected as obvious over a combination of Ovadia with Appelman in view of Li et al. (6,543,053). This is believed to be an error and the undersigned believes the Examiner meant to cite Schneidewend et al. as the third reference given that Schneidewend et al. is cited as supplying the missing element the Examiner noted (that Ovadia as modified by Appelman do not teach using the culling switches to cull out packets for programs to be broadcast which have no currently pending requests. However, claim 3 depends from claim 1 so it now also has the element of the programmed computer that functions to analyze the requests from each user and determine how many tuners each user has and manage the generation of output streams for each user so as to attempt to transmit all the requested programs and services on a number of logical channels that do not exceed the number of tuners the user has.

A minor spelling error was corrected in claim 4. Claim 4 was also rejected as obvious over a combination of Ovadia in view of Appelman in view of Weinstein. Claim 4 is dependent from claim 1, and therefor has an element which neither Ovadi nor Appelman teach (the analysis of the number of tuners and the request made by each customer). Weinstein does not supply the missing knowledge as the Examiner cites it merely for the teaching of login procedures for an interactive system.

Claims 5 and 6 depend from claim 1 so those claims will now also lack the element missing from the prior art combination and are not obvious. In addition, claim 6 has been amended to change what it claims since the original subject matter of claim 6 has been added by amendment to claim 1.

Claims 7 and 8 have been rejected as obvious over a combination of Ovadia as modified by Appleman in view of Schneidewend. Claim 8 is cancelled by this amendment, so its rejection is moot. Claim 7 depends from claim 1, so it has an element not taught by the combination of Ovadia as modified by Appleman, and this missing element is not taught in Schneidewend. Schneidewend teaches a system to encode data packets or programs in major and minor channels and transmit the data so that an on

screen menu can display different subchannels from the same overall source, e.g., NBC Sports, NBC Movies or Starz East, Starz West, Starz Family, etc. in the same grouping so that a brand identity is not lost when the same source transmits multiple channels of programming. Therefore, Schneidewend does not supply the missing element not taught by Ovadia and Appleman, and claim 7 is not obvious for lack of suggestion to make the combination of prior art references.

Claims 9-11 were rejected under 35 USC 103(a) as being unpatentable over Ovadia in view of Schneidewend and Appelman and further in view of Laubach. Claim 9 has been voluntarily amended at lines 5-6 to eliminate the reference to WANs because the P packets may be coming from a local source such as a server at the head end. Claim 9 was also voluntarily amended at lines 14-20 to add language that makes it clear that the culling switches cull packets from MPEG streams, P packet streams and packet streams from T-carrier interfaces. Support for this change is found in the specification in the following passage from page 7, line 11:

mapping said one or more requests to one or more program identifier codes, I P packet address information or other packet identifying information, and using said program identifier codes for requested video-on-demand programs to send messages to one or more video servers telling them which video-on-demand data files to output, and using said program identifier codes and/or I P packet address information or other packet identifying information to cull out compressed video packets of at least requested video-on-demand program(s) and/or service(s);

In response to the obviousness rejection, claim 9 was amended to include the following passage

and wherein said cherrypicker multiplexer includes a management means for analyzing upstream requests received from each customer and the number of tuners each customer has and for analyzing the availability of logical channels and subchannels as compared to the number of components of video programs and/or other services requested by each customer and controlling said culling switches in such a way to generate said output data streams in such a way such that each output data stream for a particular customer can be transmitted on a number of logical channels which does not exceed the number of tuners said customer has, and for generating management and control messages which control upon which logical channels and subchannels the programs and services requested by each customer or pushed programs will be transmitted and for generating messages to be sent to each customer premises which indicate upon which logical channel(s) and subchannels the video program(s) and/or services requested by said customer will be arriving;

Other changes were made to other parts of the claim to conform them to this change to

make clear what the antecedent basis was for various limitations and to generally improve the form of the claim and to add the notion of pushed broadcast programs for which no specific requests had been received. Some changes were made to improve the form of the claim such as specifying the recoders only decompress compressed packets such as MPEG packets when recoding to a different bandwidth.

Support for this change will be found in Figures 5A through 5G and the accompanying text in the specification.

The new reference applied in the obviousness rejection which was not applied in the other obviousness rejections is Laubach (6,081,533). Laubach teaches a modular subscriber terminal unit or gateway which resides at the customer premises. The invention of claim 9 is an improved headend multiplexer. Laubach does not teach a smart headend which manages generation of output streams by the culling switches so that the programs and/or services requested by each customer can be sent to that customer on a number of logical channels which do not exceed the number of tuners the customer has.

None of the prior art applied in this rejection teach this limitation. Specifically the new language added to claim 9 defines a head end multiplexer that examines the requested received from each customer, the number of tuners the customer has and the availability of logical channels and subchannels. None of the applied prior art teaches generating control messages to the culling switches to generate output streams that can be transmitted to each customer on a number of logical channels which do not exceed the number of tuners the customer has and generating control messages to the cable modems controlling which logical channels and subchannels each data stream for a particular customer is transmitted upon and generating downstream messages to the customers gateways or cable modems telling them upon which logical channels and subchannels the programs and services they requested will be arriving. Thus, even if the prior art combination were made, it would still lack this element and be inoperative to solve the problem the claimed invention solves. As such, one skilled in the art would realize this and perceive no likelihood of success in solving the problem by making the combination the Examiner made. Thus, there is no suggestion to combine the references and the obviousness rejection prima facie case is not made out.

Claims 10 and 11 and 12 depend from claim 9 and are not obvious for the same reason claim 9 is not obvious. Claim 11 has been voluntarily amended to remove

limitations already in claim 9 and to add that the cable modems are DOCSIS compatible. In addition, claim 12 has been amended to remove limitations that have been added to its parent claim and to change what is being claimed to a "means for managing output data streams for maximum efficiency." The meaning of this phrase is made clear by the following passage from the specification which starts at page 5, line 15:

In another subgenus of species, the pull multiplexer includes a load management process that functions to make sure as many users as possible receive their requested services and/or programs given the bandwidth constraints of the downstream. In some species, this load management process also attempts to group all requested programs and services being used at a single customer premises on a single channel if possible so a gateway or modem with only one tuner can be used to recover all the data packets of all the requested programs and/or services. In some circumstances, a certain high demand program has been requested as part of a plurality of different requested programs from the same customer premises. Suppose this high demand program is either being broadcast or has also been requested by multiple other customers and the channel on which it is being transmitted has no available program slots for the other program(s) and/or services that have been requested by the customer. In such a case rather than move the high demand program/service that is also being viewed/used by other customers to another channel with the need for downstream messages to all these other customers telling them where it has been moved and an interruption in service, another approach is possible. In such a situation, the load management process simply sends another copy of the data packets encoding the high demand program/service on another channel which has available slots for the other program(s) and/or services that the customer has also requested. This way, all the requested programs/services can be received with just one tuner in the customer's gateway/modem thereby reducing the cost to the customer of their equipment. One or more aspects of the processing defined in this paragraph or similar processing described in the detailed description section, and the program structure(s) needed to do this processing, are referred to in the claims as a means for managing output streams for maximum efficiency.

The prior art references clearly do not teach such an element so this is an additional reason why the applied combination of references does not render claim 13 obvious (the combination falls short by two elements of what is needed to solve the problem amended claim 12 solves).

Claims 13-15 were rejected as obvious over a combination of Ovadia, Laubach and Schneidewend. Claim 13 defines a cherry picker headend for DSL delivery of requested programs and services. In response to the obviousness rejection, claim 13 has been amended to add the following limitations not found in the applied prior art

combination:

for analyzing the number of tuners each customer has and the number of requests each user has made and the bandwidth availability on a bidirectional channel and a wideband channel of said DSL line and for generating said culling selection criteria so that, as many times as possible, said requested program(s) and/or service(s) are sent on a number of logical channels that do not exceed the number of tuners said customer has

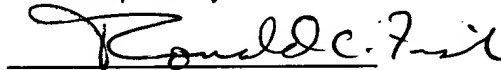
This limitation came from claim 14, so claim 14 has been voluntarily amended to remove this limitation and substitute the addition of a means for managing the output data streams for maximum efficiency as that phrase is used in the specification and the other claims.

Claim 15 depends from claim 13 so it is not obvious for the same reasons claim 13 is not obvious.

Favorable action is earnestly solicited.

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Respectfully submitted,



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